

W5YI

National Volunteer Examiner Coordinator

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

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★ In This Issue ★

OSCAR-13 Set for General Ham Use
Congress Opposes 220 Reallocation
Petition of the Month Club
Telephony Privileges on 30-MHz
Upgrade Incentive/Novices, Techs
AntiJam HF Antennas!
Ex Parte Infighting on 220-222 MHz
New VRAC Chairman Appointed
JARL Sends out Newsletter to U.S.
May Ham Licensing Statistics
Novice Enhancement Update
Ham Census by State/License Class
Electronic Technology Roundup
O'Hare Repeater Self Coordination

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OSCAR-13 SET FOR GENERAL HAM USE "LATE JULY"

AMSAT ground controllers successfully fired AMSAT **OSCAR 13's** kick motor on June 22 and again on July 6th in a "go for broke" effort to make a major orbital change. OSCAR is an acronym for "**Orbiting Satellite Carrying Amateur Radio**" ...a series of satellites built by Amateur Radio operators from several nations of the world. OSCAR-1 was orbited in 1961 and was the first non-governmental satellite, designed and built by a group of volunteer ham operators from California.

All recent OSCARS have been designed and constructed under the supervision of AMSAT, the *Radio Amateur Satellite Corporation*, a non-profit scientific organization headquartered in Washington, D.C. Amateur satellites are launched as "hitchhikers" aboard rockets orbiting commercial or government payloads. The latest OSCAR, was initially launched as AMSAT Phase 3C aboard an European Space Agency Ariane-4 from French Guiana on June 15, 1988. It became OSCAR 13 (AO-13) the same day upon its insertion into orbit.

The June 22nd "burn", expending 15% of its propellants, raised OSCAR 13 into an intermediate orbit. The final maneuver performed last week consumed all of the propellant fuel on board. The motor burn had the effect of raising the low point of the orbit from about 683 miles to about 1490 miles. The apogee (high point of the elliptical orbit) was essentially unchanged at 22,360 miles. For the first time in history, Amateur Radio has a new satellite in the right orbit for long-duration DX communication

on the ham bands. All of the telemetry indications from AMSAT OSCAR 13 show this to be a very healthy bird indeed! Power generation is excellent and temperatures are all within expected ranges.

AO-13 telemetry is transmitted in three forms: PSK (phase shift keyed); RTTY and CW. The RTTY uses FSK (frequency shift keyed) tones spaced 170 Hz at a signalling rate of 50 baud. RTTY telemetry is sent at 15 and 45 minutes past the hour with 10 wpm CW telemetry at 0 and 30 minutes past the hour. PSK telemetry is sent at other times at 400 baud. Telemetry reception in many areas has been hampered by 2-meter FM users - many of whom are unaware 145.800 to 146.000 MHz is, by general agreement, a sanctuary for weak signal, satellite operations. The Mode B General Beacon operates at 145.812. Sixty-four channels of telemetry are sent in PSK.

On June 25th, telemetry indicated effects from a huge solar flare when on board self-correcting devices adjusted for radiation induced errors in the computer. OSCAR-13 is extremely radiation resistant ...least a thousand times more than AO-13 launched in 1983.

A few steps remain before the satellite will be made available for general operation by the Amateur Radio community. Precision tracking will accurately measure the final orbit, re-orientation to the correct attitude for communications operations and final transponder check-out are all that remain.

W5YI REPORT

National Volunteer Examiner Coordinator

Page #2

July 15, 1988

"This should be accomplished before the end of July" AMSAT officials said.

OSCAR-13 employs communications transponders ranging in frequency from 2 meters through the 13-cm ham band. In its final orbit, similar to an orbit frequently used by the Russians called "Molniya", AO-13 will provide up to 18 hours of communications coverage per day. Because its apogee (high point) is as high as a geosynchronous communications satellite, it will cover a hemisphere at a time.

A detailed operating plan for AO-13 will evolve after initial operations commence and will be based on operating experience ...including use levels. Initially Mode B will be used almost exclusively with Mode JL used in modest proportions. Then, depending on use patterns, Mode JL use, especially around apogee will be gradually increased. After a certain period, Mode JL operation will likely predominate the operating schedule in order to take maximum advantage of its broad bandpass.

Because of its inclined orbit, users will be able to easily work "over the pole"; a feat not achievable on geosynchronous satellites. VHF/UHF QSO's to DX areas such as VU, 9AP, 9V and YB are at hand. These have never been regularly possible on any prior satellite but they are about to become a daily occurrence on OSCAR-13.

AO-13 is a joint project of AMSAT-NA and AMSAT-DL with substantial assistance from numerous other affiliated AMSAT organizations. AMSAT-NA suggests a suitable way of celebrating this historic milestone is to make a donation to AMSAT to replenish its depleted treasury. Donations and inquiries about membership should be sent to AMSAT, P.O. Box #27, Washington, D.C. 20044. (Tel: 301-589-6062)

CONGRESS OPPOSES REALLOCATION

The League and its Washington legislative lobbying firm, Chwat/Weigend Associates, continue to pull out all the stops in its battle to save the top 2-megahertz of the 220-225 Mhz band for Amateur Radio. On June 28th, Senator Pete Wilson of California introduced **Senate Concurrent Resolution 127** in support of Amateur Radio allocations. It is aimed at getting the attention of the FCC before it makes the 220-222 MHz decision which is expected shortly. It is similar to a House Concurrent Resolu-

tion introduced by Rep. Dornan of California. It reads:

Whereas, more than 435,000 radio amateurs in the United States of America are licensed by the Federal Communications Commission upon examination in radio regulations, technical principles and International Morse Code; and...

Whereas, by international treaty and FCC regulation the amateur is authorized to operate his or her station in a radio service of intercommunication and technical investigation with a personal aim and without pecuniary interest; and...

Whereas, among the basic purposes of the Amateur Radio Service is the provision of voluntary noncommercial radio service, particularly emergency communications; and...

Whereas, volunteer Amateur Radio communication services have consistently and reliably been provided before, during and after floods, tornadoes, forest fires, earthquakes, blizzards, train wrecks, chemical spills and other disasters;

Now, therefore, be it resolved by the Senate, the House of Representatives concurring, that in the sense of the Congress, that...

One, It strongly encourages and supports the Amateur Radio Service in its emergency communications efforts; and...

Two, Government agencies shall avoid actions which would reduce Amateur Radio frequency allocations used for these purposes.

Ira Goldman, legislative assistant and counsel to Senator Wilson said "It was logical for the Senator to note the contribution of Amateur Radio in the public safety area as part of his broader concern for public safety issues generally. Obviously there's concern about attempted reallocation at the FCC. There's an understandable tendency for people to focus on the needs of commercial ventures as they offer new technologies. But we wanted to put the congress on record that if the FCC is going to look at reallocation of frequencies allocated to Amateur Radio, that it takes into account that Amateur Radio is not simply a hobby or pastime, but a service that has helped a lot of people."

PETITION OF THE MONTH CLUB

Requests to change the Amateur spectrum and licensing scheme seem to be coming into the FCC with increasing frequency (pun intended.) In June, the Commission received more contradictory

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W5YI REPORT

National Volunteer Examiner Coordinator

Page #3

July 15, 1988

input about what to do with the license privileges, which its author titled (this is not a misprint): "Plan Nine from Outer Space."

Telephony Privileges on 30 MHz

Responding to a petition (RM-6363) by **Anthony J. Sivo, W2FJ**, of Plainsboro, New Jersey, to permit phone emissions in the 30 meter, 10.1-10.15 MHz band, the ARRL submitted a detailed set of counter arguments. Sivo had told the Commission that 30 meters is underutilized, to which the League replied, "Perhaps the petitioner has not sufficiently monitored the teleprinter transmissions on the band, including packet radio transmissions, which are increasingly conducted there."

ARRL said that because of rules requiring hams to avoid interfering with fixed service stations in the band, a "quantitative band loading analysis ...is irrelevant to a determination of proper emission modes." It said that this obligation to avoid interference to fixed stations in other countries "overshadows all other considerations."

The League cited a 1980 survey it conducted that brought in 610 written responses about possible structures for the use of 30 meters. "Of 610 written comments received at League headquarters, 71% of the respondents suggested that either A1A emissions only or A1A and F1B [teleprinter] emissions only in the 50 kHz wide band should be allowed.

ARRL also noted that none of the International Amateur Radio Union (IARU) band plans for the three regions recognize phone operations at 30 meters, that phone portions of other bands have been expanded, that the 24 MHz band offers phone operation, and that the forthcoming 18 MHz band will "inevitably" offer additional voice opportunities.

Sivo rebutted the ARRL on each point. "The make-up of the ARRL membership is such that its aim is to preserve and foster a particular mode of communication, A1A (CW)," he said, although Sivo is an ARRL member. "Accepting ARRL's survey would be tantamount to assigning the fox to take charge of the hen house."

Sivo claimed that the IARU "has no legal basis in fact" and that its "regional organizations ...represent a minority of amateur radio operators [who came] up with a 'members only' band plan....

If one does not comply with their band plan, a group of self-appointed vigilantes undertake, in the name of the band plan, to create willful and malicious interference to that persons' operations."

Sivo said he was not aware of any complaints from fixed services and that he believed the alleged lack of interference problems did not stem from the use of narrowband emissions on 30 meters, but simply by careful operation that would be expected of phone operators as well.

"Despite the recent increases in radiotelephone operations," Sivo told the FCC, "a large gap exists between the 7 MHz and the 14 MHz amateur bands, whereby the 7 MHz radiotelephone operator is denied access to a WARC band and, consequently, a denial in optimizing his propagation parameters. This petition is not simply a request for more frequencies to be allocated to the radiotelephone operator, but one of fairness in allowing the amateur to practice the art of following the Maximum Usable Frequency (MUF) in order to optimize his propagation path -- no matter what his favorite operating mode happens to be."

Upgrade Incentive for Novices/Techs

In his "**Plan Nine from Outer Space**" proposal (a title he borrowed from an old science-fiction movie), **William R. Gardner, W8WG**, of Athens, Ohio, said the FCC and ARRL have ignored a "golden opportunity" to provide an "additional built-in Incentive Licensing Program for Novice and Technician Class operators." He recommended that a segment of 15 meters be provided to Novices and Technician Class operators." He recommended that a segment of 15 meters be provided to Novices and Techs for phone operation, if they pass a 9 word-per-minute code test. He selected the 9 WPM level because it is 4 WPM greater than the beginning 5 WPM level and 4 WPM away from the General 13 WPM level.

Gardner suggested the 21.2 - 21.225 MHz Extra Class segment as the one to turn over to the "Plan Nine" Novices and Technicians. To compensate Extras, he urged the FCC to give Extras the entire 17 meter (18.068 - 18.168 MHz) band for their exclusive use. "What a trade!" he exclaimed.

Gardner also included several comic strips in his petition, including one depicting a bureaucrat sitting at a desk labeled "FCC". The desk has an

W5YI REPORT

National Volunteer Examiner Coordinator

Page #4

July 15, 1988

"IN" box, but no "OUT" box -- the office window is labelled "OUT." An identical strip had the word "FCC" replaced by "ARRL". A prolific petitioner, Gardner has submitted several other rather innovative proposals to the commission recently including the use of ham frequencies to communicate directly with the police, use of the Amateur Service as a marine distress service and the creation of a National Amateur TV Network.

ANTIJAM ANTENNAS

Scientists at **SRI International**, the California think tank, have devised new types of portable, easy-to-build HF receiving antennas with increased immunity to interference. The unusual antennas were designed to enable SWLs (short-wave listeners) behind the Iron Curtain to receive Western broadcasts more clearly in spite of ground-wave and sky-wave jamming.

The antennas may have intriguing Amateur Radio applications as well. They are small relative to wavelength, may be used indoors if necessary, and do not require preamplifiers or other active components. They have been shown to reduce unintentional cochannel interference and noise from other man-made sources such as power lines.

The antennas have been under development since 1983. *The Voice of America* funded a portion of the project in 1986. According to SRI scientist, **Dr. Oswald G. Villard, W6QYT**, of Woodside, "In effect, the antennas create a radio shadow or null region for the interfering signal within the space occupied by the receiver and its antenna. The desired signal penetrates the shadow region because it comes from a different direction. Thus, these devices might appropriately be called 'personal radiation processors.'" Research indicates that discrimination on the order of 20 to 30 dB can be achieved.

Although the SRI team constructed a variety of antenna models with exotic names such as "Triwhip," "Twin-Plate" and "Directional Wave Trap", two designs have emerged as the ones of primary interest. These are the Horizontal-Loop Antenna (HLA) and the Coplanar Twin-Loop (CTL).

The HLA consists of a wide, flat metal strip (foil may be used) in the form of a rectangular loop, fastened to a backing such as a bulletin-board sized piece of wood. It is tuned with a medium-wave-type

capacitor, or a capacitor can be fashioned from a piece of wax paper placed between the metal strips. A portable SW receiver can be mounted directly on the board. Unlike vertical loops, the HLA attenuates ground-wave interference on the basis of polarization. It has been used successfully to uncover broadcasts made unintelligible by ground-wave jamming in Europe.

The Coplanar Twin Loop can attenuate both ground-wave and sky-wave interference. It includes two concentric loops mounted on a flat surface. The outer loop is loaded with a coil, and is tuned to the frequency of the desired station with a capacitor. The inner loop is tuned once per band. "The CTL can obtain a null with fading skywave signals, something which the conventional loop cannot do," Villard told us. Construction details of this antenna will appear in the Fall in QST, in an article by W6QYT titled "*The Coplanar Twin Loop -- A Compact Unidirectional Receiving Antenna for Sky-Wave Interference Rejection and Direction Finding.*"

EX PARTE INFIGHTING ON 220-222 MHz

The *Special Industrial Radio Service Association, Inc. (SIRSA)* made an "Ex Parte" presentation to the FCC on June 7th concerning the 220-222 MHz reallocation matter. An Ex Parte presentation, [which must be documented and a matter of public record], brings additional information to government regulators after official comment periods have closed on a proposal under active consideration.

SIRSA's presentation to **Commissioner James H. Quello** argued ARRL's position that the 30-50 MHz band was a better location for narrowband business communications "is a meaningless effort to deflect the Commission's attention from the real issue ...the potential reallocation of the 220-222 MHz band to the land mobile services."

SIRSA says ARRL's claim that the 30-50 MHz band is under-utilized is unsupported and inaccurate... narrowband operation in the 30-50 MHz band is not currently feasible ...any 30-50 Mhz narrowband channelization would have to be on a voluntary basis so as not to disrupt current land mobile operations ...equipment manufacturers are not producing narrowband equipment for the 30-50 MHz band ...and it would be another 5-10 years before 30-50 MHz equipment would be ready. SIRSA called the 220-222 MHz segment "currently under-utilized" by the Amateur Radio Service

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On June 7th, representatives of **SEA, Inc.**, whose narrowband technology UPS proposes to use for their 220-222 MHz data network, made their position known to the FCC via the Ex Parte route.

On June 15th, **Larry E. Price, W4RA**, ARRL president made an Ex Parte presentation to **FCC Chairman Dennis Patrick** on the need for continued access by the Amateur Radio Service to the entire 220-225 MHz band and the severe damage the service would suffer from the proposed reallocation of the 220-222 MHz segment to land mobile operations.

• **Lawrence Kaczmarczyk, ex-W3UQW**, of Mahanoy City, PA, has had his 1986 application for Advanced Class license designated for hearing. Kaczmarczyk surrendered his ham ticket in 1985 after the FCC started license revocation proceedings against him for intentional jamming, transmission of music, broadcasting and unidentified communications. In a plea bargain arrangement, the FCC agreed to accept an application from him in one year for routine relicensing providing there were no violations in the interim. However, three months later the FCC said he was monitored on three different occasions again intentionally causing harmful interference to radio communications. A hearing has been scheduled to determine whether the applicant is qualified to become an amateur service licensee.

• The ARRL has a new chairman of the **VHF Repeater Advisory Committee**. He is **Jim Brooker, N18E**, of Birmingham, Michigan. **Karl Pagel, N6BVU**, had continued to perform the function of Chairman until a successor could be found. Brooker will serve as VRAC Chairman for the remainder of the 1988 term. We had heard that other VRAC members agreed to head up the VRAC providing the League would indemnify them against legal actions, but the ARRL refused. Dave Sumner, ARRL Executive Vice President, said that was not correct. "It's true that the League's professional liability insurance coverage does not extend to Advisory Committee members except when they are acting on the direction of an officer or director of the corporation; but because the actions they take on behalf of the League are strictly advisory, the question of legal liability does not arise." (Letter dated June 23, 1988)

• ICOM sent out a press release reminding the amateur community the part that ICOM gear played in the historical three month USSR-Canadian

Polar Bridge Expedition that was completed on June 1, 1988. The event ...a 1,240-mile 90-day journey from Cape Arctic, Russia, across the North Pole, to Cape Columbia, Canada, marks the first time the Arctic has been crossed by foot from the Soviet Union to Canada. The Soviet stations used Soviet-made equipment while the Canadian stations used strictly ICOM equipment ...specifically the IC-761 HF transceiver, IC-2KL linear amplifier, IC-275H 2-meter base station transceiver, IC-A2 airband handheld and IC-u2AT 2-meter handheld. ICOM also supplied an IC-761 for the Soviet's use. The skiers tracked their position every 100 minutes with the IC-u2AT handhelds via the amateur radio satellite, UoSAT OSCAR-11, which used a "talking" computer to relay the navigation information. With the exception of the loss of ICOM equipment which fell into the sea when the ice cracked beneath the station, all equipment worked superbly according to **Thomas Atkins VE3CDM/VE8UA**, President of the Canadian Radio Relay League and Polar Expedition Canadian Communications Coordinator.

• The JARL (*Japan Amateur Radio League, Inc.*) has a new English language publication entitled "**The JARL News**".

The June, 1988, Vol. 1., No. 1 issue tells of a decision to press for the launching of a **second amateur radio satellite, JAS-1b**.

Ham Fair '88 will be held on August 26-28 in downtown Tokyo. "The Ham Fair is famous for its wide variety of exhibits and is well attended just like the Dayton *HamVention* in the U.S. and *HamRadio* in West Germany." They expect 60,000 attendees during the 3-day event.

So many Japanese amateurs have reapplied for their expired calls, that the *Ministry of Posts and Telecommunications* has agreed [until May 31, 1989] to **reissue expired calls** except in cases where a call has been already reissued to another station. Under current Japanese regulations, unless application for renewal of a station license is made within six months of license expiration, the same call sign will not be reissued.

On May 5, 1988, **BY7HT** began operation from Yueyang City, China. To mark the event, the JARL contributed some ham equipment and sent a five-member delegation to the opening ceremony.

Until September 18, the JARL will operate two special event stations marking the **Seikan Expo '88**. The Expo commemorates the linking of two islands by undersea rail. 8J7XPO and 8J8XPO will operate from docked ships that used to provide shuttle service from Honshu to Hokkaido Islands.

W5YI REPORT

National Volunteer Examiner Coordinator

Page #6

July 15, 1988

MAY AMATEUR LICENSING STATISTICS

	<u>MAY</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
New Amateurs	2174	894	6567	3002	
Upgrading:					
Novices	1437	447	2563	1885	
Technicians	497	183	730	573	
Generals	563	164	789	492	
Advanced	297	111	485	376	
Total:	2794	905	4567	3326	
Renewals:					
Novices	403	N/A	310	335	
Total:	3249	N/A	3145	4088	
Purged:(*)	1364	1174	1252	2010	
Census:					
Indiv. Oper.	410846	417167	428867	436912	
Change/Year		+6321	+11700	+8045	
Indiv. Operators by Class:					
Extra	Advan.	General	Tech.	Novice	Total:
May 1985:					
36983	97551	116816	81406	78090	410846
May 1986:					
39463	97856	116460	84659	78729	417167
May 1987:					
42136	97880	115045	87631	86175	428867
May 1988:					
45208	98493	113648	96888	82675	436912
Club, RACES, (1985) (1986) (1987) (1988)					
& Military					
	2816	2735	2449	2366	
Total Active	413662	419902	431316	439278	
% Increase		+1.51%	+2.72%	+1.85%	

NOTE:

* Purged licenses are those amateurs who failed to renew their licenses and whose 2 year grace period has expired. In 1987, 888 of the 1252 purged were Novices (70.9%). In May 1988, 1055 out of 2010 purged licenses were Novices (52.5%). Conclusion: Fewer Novices are letting their license lapse.

NOVICE ENHANCEMENT UPDATE....

It has been more than a year since *Novice Enhancement* was enacted, so lets take a look at the "New Amateur" figures for the last three years ending May 31, 1988.

<u>Month</u>	<u>1985/86</u>	<u>1986/87</u>	<u>1987/88</u>
June	1186	2028	1850
July	1478	2808	870
August	1335	1377	918
September	908	1504	1917
October	1356	874	882
November	910	1404	1131
December	2385	1826	2582
January	1477	2248	1189
February	1805	1889	1624
March	1606	795	2733
April	2767	2950	2195
May	894	6797*	3002
TOTALS:	18,107	26,500	20,893

Although Novice Enhancement officially started on March 21, 1988, the "New Amateurs" for the month of May 1987(*) actually represents amateurs who took the "old" 25 question Element 2 examination prior to March 21. (Gettysburg was behind in processing applications.) It now appears that applicants were rushing to beat the deadline for taking the old Element 2 Novice written examination. In any event, the amount of new licensees has more or less reverted back to the previous level. We will stay on top of "Novice Enhancement" figures. At this point, it does not appear that it is bringing in "new blood" to the amateur ranks as well as first thought. Novices are grading up, however, at unprecedented levels to the Technician class. The splitting of the old Element 3 into 3(A) and 3(B) seems to be having more of an impact than increased privileges for Novices!

IS YOUR STATE GROWING? HAM RADIO CENSUS BY STATE & LICENSE CLASS

	<u>EXTRA CLASS</u>		<u>ADVANCED</u>		<u>GENERAL</u>		<u>TECHNICIAN</u>		<u>NOVICE</u>		<u>TOTAL:</u>	
<u>STATE</u>	<u>1985</u>	<u>1988</u>	<u>1985</u>	<u>1988</u>	<u>1985</u>	<u>1988</u>	<u>1985</u>	<u>1988</u>	<u>1985</u>	<u>1988</u>	<u>1985</u>	<u>1988</u>
Alabama	533	675	1305	1380	1600	1539	1244	1508	1031	1026	5713	6128
Alaska	204	235	470	470	574	540	333	353	407	370	1988	1968
Arizona	661	858	1926	2015	2150	2138	1648	2055	1141	1151	7526	8217
Arkansas	284	354	775	791	906	885	588	766	535	549	3088	3345
California	4774	5753	14134	14092	14809	14753	13324	15459	9720	11070	56761	61127
Colorado	678	840	1651	1713	1903	1897	1175	1535	1165	1146	6572	7131
Connecticut	683	808	1434	1419	1865	1800	880	1084	1477	1423	6339	6534
Delaware	107	131	219	234	255	253	195	229	200	173	976	1020
Dist. Columbia	55	67	104	100	128	119	46	47	76	69	409	402
Florida	1993	2559	5968	6256	7014	7354	4582	5540	4643	5222	24200	26941

W5YI REPORT

National Volunteer Examiner Coordinator

Page #7

July 15, 1988

STATE	EXTRA CLASS		ADVANCED		GENERAL		TECHNICIAN		NOVICE		TOTAL:	
	1985	1988	1985	1988	1985	1988	1985	1988	1985	1988	1985	1988
Georgia	727	908	1894	1990	2162	2201	1522	1956	1312	1355	7617	8410
Hawaii	186	226	473	482	551	539	305	447	349	555	1864	2249
Idaho	178	206	453	446	617	616	314	400	374	370	1936	2038
Illinois	1568	1841	3841	3788	5094	4647	3652	3977	3255	3321	17410	17574
Indiana	752	944	2138	2139	2632	2532	2199	2507	2076	2028	9797	10150
Iowa	407	491	1334	1261	1563	1459	746	870	940	1000	4990	5081
Kansas	380	474	1047	1020	1556	1428	656	862	936	976	4575	4760
Kentucky	347	447	942	977	1309	1252	934	1137	986	994	4518	4807
Louisiana	465	553	1212	1212	1364	1307	840	1008	809	808	4690	4888
Maine	225	282	531	547	872	870	319	417	467	493	2414	2609
Maryland	877	1039	2018	2036	2003	2026	1230	1522	1315	1367	7443	7990
Massachusetts	1194	1377	2502	2469	3366	3099	2256	2445	1744	1915	11062	11305
Michigan	1243	1449	3218	3233	4180	3914	2730	3067	2850	2604	14221	14267
Minnesota	681	774	1755	1749	2199	2096	1090	1330	1425	1274	7150	7223
Mississippi	215	278	633	654	795	763	429	572	442	482	2415	2749
Missouri	704	866	1906	1910	2479	2367	1374	1638	1637	1477	8100	8258
Montana	154	187	369	348	551	518	170	216	333	334	1577	1603
Nebraska	177	248	732	715	980	955	408	532	507	491	2804	2941
Nevada	179	231	433	473	592	620	374	458	342	339	1920	2121
N. Hampshire	291	396	591	642	808	847	498	629	483	479	2671	2993
New Jersey	1376	1576	3128	3021	3487	3242	2661	2806	2212	2288	12864	12933
New Mexico	335	407	710	760	804	769	467	586	367	404	2683	2926
New York	2278	2608	5645	5385	6844	6431	4957	5201	6047	6204	25771	25809
North Carolina	741	981	2068	2262	2390	2512	1504	1989	1434	1525	8137	9269
North Dakota	66	92	207	217	387	372	106	167	249	277	1015	1125
Ohio	1648	2004	4421	4409	5481	5080	4926	5604	3831	3982	20307	21079
Oklahoma	394	523	1323	1314	1353	1284	1046	1311	933	989	5049	5421
Oregon	649	768	1739	1741	2261	2222	1351	1663	1556	1481	7556	7875
Pennsylvania	1577	1924	3914	3920	4960	4658	3259	3616	3490	3477	17200	17595
Rhode Island	162	193	296	309	503	477	364	422	273	328	1598	1729
South Carolina	324	405	857	876	1177	1175	610	809	533	590	3501	3855
South Dakota	87	108	282	294	364	348	137	193	209	186	1079	1129
Tennessee	672	831	1895	1917	1875	1871	1771	2122	1274	1334	7487	8075
Texas	2238	2895	6159	6209	7064	6772	4940	5995	3842	4109	24243	25980
Utah	198	283	600	643	614	582	611	869	459	631	2482	3008
Vermont	116	151	257	255	332	345	129	215	175	189	1009	1155
Virginia	1057	1285	2346	2478	2725	2712	1531	1961	1632	1752	9291	10188
Washington	1122	1359	2956	3054	3677	3737	2399	3063	2463	2785	12617	13998
West Virginia	236	274	588	590	820	784	517	656	819	856	2980	3160
Wisconsin	561	697	1563	1585	2145	2044	1075	1271	1246	1231	6590	6828
Wyoming	79	108	185	189	302	258	123	187	238	235	927	977
Guam	12	23	42	40	25	31	23	33	74	171	176	298
Puerto Rico	114	184	313	432	300	527	810	1542	1703	2731	3240	5416
Virgin Islands	12	23	38	40	41	55	22	39	42	47	155	204
Amer. Samoa	2	3	2	3	5	9	2	1	5	7	16	23
Johnston Isl.	0	1	1	0	0	0	0	0	1	0	2	1
N. Mariana Isl.	4	5	5	6	3	6	2	1	2	0	16	18
Other	1	0	3	3	0	1	2	0	4	5	10	9
TOTAL:	36983	45208	97551	98493	116816	113648	81406	96888	78090	82675	410846	436912

(Source: Federal Communications Commission, Washington, D.C.)

entry level Novice course. Cost: \$19.95 plus \$2.00 shipping and handling. One manual covers both 3A and 3B. Advanced (4A) or Extra Class (4B). Cost: \$4.95 each plus \$1.50 shipping/handling. W5YI Report; P.O. Box #565101; Dallas, TX 75356-5101

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ELECTRONIC TECHNOLOGY ROUNDUP

• **Forget about turning back mileage** on used cars of the future. West Germany's Siemen's has an electronic odometer chip that once programmed, can't be altered. The EEPROM (electrically erasable programable read only memory chip) has a built in fuse that is automatically blown in the initial programming process to prevent resetting. Electrical power problems or car battery removal have no effect on the on the stored reading.

• **The major difference** between desktop publishing and typesetting is resolution. Most laser printers on the market today are 300 dpi (dots-per-inch). Canon has a new 400 dpi laser engine. Other firms have 500 dpi resolution and beyond. Anything above 400 dpi is lost unless high grade paper is used. Kodak has a four-color laser printer.

• **No more watch battery changing!** Seiko invented the battery operated wristwatch 20 years ago to replace mechanical self-winding watches. Now Seiko has combined the two technologies to produce a watch with an internal electrical generator. Wrist movements cause a rotor to spin which charges a battery - enough for three days.

• **An electronic stolen vehicle recovery system** is being used in Florida and Massachusetts to recover stolen cars. Car owners connect a small addressable transmitter to their car's electrical system ...police cruisers are fitted with tracking units. Both elements are linked through a statewide communications network. Police zero in on the stolen car - usually within one hour - when the unit's unique code is remotely activated. Range of the emitted signal is about five miles.

• **Video shopping catalogs!** Look for Home Shopping Services that allow you to buy using your home computer keyboard to take advantage of specialized compact disks with massive storage to provide near-photo quality digitized pictures and stereo sound. The **Sears/IBM "Prodigy"** joint videotex venture is working on it. Another new "Prodigy" wrinkle will be ads that appear in the bottom fifth of the screen that will be tailored to your interests. (The system will remember the services that you access.)

• IBM is toying with a new gadget they call **PLI ...for Paper-Like Interface**. You use an

electronic pen to write directly on a backlit high-resolution hand-held LCD digitizing tablet which combines the functions of a computer keyboard, mouse and screen. A computer is "trained" to recognize the handwriting of the user.

• **IBM is cutting back** some 4,000 employees in their PC operation in order to become competitive with the microcomputer marketplace. IBM is also closing its Boca Raton, Fla., plant - the birthplace of the original IBM-PC. We also heard that IBM is readying a new line of **TS/2 PC's**.

• **ACTS, Automated Computer Time Service**. A new internal computer clock setting service is being offered by the *National Bureau of Standards*. Using a 300 or 1200 baud modem, a time code is transmitted over the phone lines into a computer. Phone line delays are automatically corrected by determining round trip time for a signal sent by NBS to return from a recipient. Accuracy of 1/10 to 1/1000 second is provided. Software costs \$35.

• **Micro-Dry, Inc**, a new Tulsa, Oklahoma, firm has developed a **Miracle Dry dryer** that uses microwave energy to dry clothes. Supposedly cuts drying time by one third using half the electrical energy without clothing shrinkage or wrinkles. Other benefits include bacteria killing microwaves and automatic turn-off.

• **VCR's could become obsolete!** Dutch electronics giant, Philips has produced a CVD (compact videodisc) player - a competitor of the compact disc and videocassette player. Recording and movie companies are very interested but fear the impact of recordable/erasable CD technology which is about five years away. Lifespan of the CVD recording is 10 times that of the videocassette and the cost will eventually be less. The quality of a CVD image is equal to that of 35-millimeter, big screen movies.

• **Go-Video** of Phoenix has received a patent to make **dual-deck VCRs**. The VCR-2 allows users to watch a tape while editing or recording another, record two shows and duplicate tapes from Betamax to VHS format. Movie companies are worried that the device will also be used to make copies. Go-Video's stock *nearly tripled in eleven days!*

• **The popularity of analog car phones** is quickly depleting the spectrum allocated to cellular

"I am a currently licensed Extra Class amateur radio operator and wish to be a volunteer examiner. I have never had my station or operator license revoked or suspended, and I have no criminal record." **WOULD YOU LIKE TO BECOME A VOLUNTEER EXAMINER?** Please send a copy of your Extra Class license, the following signed statement, and a letter to W5YI, P.O. Box 100, Ithaca, NY 14850.

WSYI REPORT

National Volunteer Examiner Coordinator

Page #9

July 15, 1988

service where demand is expected to triple within three years. Bell Labs has developed a new digital transmission system that squeezes three voice channels into the frequency spectrum currently required to handle a single cellular call. AT&T is testing the technology in Chicago.

- Regency Electronics is franchising a new turnkey cellular car telephone service called **Budgetel Mobile Systems**. They have begun accepting local Indianapolis subscribers who pay \$995 plus installation any \$59.95 monthly for *unlimited* local three-minute calls.

- Researchers say, however, that **portable phones and not car phones** will carry cellular service into the future. Eventually tiny cellular phones with desk-phone prices will render pagers, pay-phones and telephone answering services obsolete. NEC has a hand-held model that can be plugged into a car and used as a mobile phone. They also have a portable FAX unit that can transmit through a cellular car phone.

- House wiring is becoming a popular conduit for all sorts of electrical devices. NEC is testing their **Spectrum AC System** that allows data communications to be sent from computers to peripheral devices such as security devices, audio/visual systems and household appliances over existing power lines.

- Zenith is manufacturing **new interactive Videoway terminals** that not only allows viewers to access cable TV, but pay television, PPV (pay-per-view) programming, videotex databases, tel-text, electronic messaging, closed captioning and download computer software via cable as well. The terminals will be used in Montreal, Canada. Zenith, the last U.S. maker of television sets, is considering selling its money-losing TV business. *Zenith Data Systems* computer line is carrying the company.

- Fujitsu Labs (Japan) has developed a **four-color LCD display** that is nearly five times as bright as conventional LCDs. Seiko-Epson has developed a color LCD display on a paper-white background. **Tandy will discontinue** its 1000-SX computer which will be sold only in non-Tandy outlets including Wal-Mart. A new computer to replace it will debut in a couple of weeks (July 27.)

- Northwest Airlines is testing Airvision**, a new six-channel personal television set on seat backs featuring first run movies, sports and news.

Two minutes per hour has been set aside for advertising to affluent frequent flyers. Cost is \$4 for a headset.

- It is hard to believe that shoppers will pay money to find out where the bargains are, but **Dial-n-Save** charges Los Angeles consumers \$2 to call 976-2SAV. After punching in their shopping area code, consumers are bombarded with up to 18 "sale" messages. Retailers are charged \$118 a week to have their message listed

- Nolan Bushnell**, the inventor of the video game some 20 years ago is back at Atari - a firm he started. He will deliver 20 video games a year. Bushnell was advanced one million dollars! Video-games - of which Atari claims a 20% share - are enjoying a resurgence. Nintendo, last year's hot seller, claims 70% of the \$1.1 billion market.

- Consumers do not want to pay the price** of a plain copy FAX machine. Xerox has introduced a new line of \$2,000 thermal paper fax machines. Xerox previously produced only cut-sheet plain-copy machines which cost more ...about \$3,500. Xerox used to be the fax sales leader, but now Sharp, Canon and Ricoh have taken over.

- Computers keep getting faster!** Intel and Motorola will shortly be marketing 33-MHz microprocessor chips. But they won't be twice as fast as a 16-MHz chip since other factors slow down the system. A 33-MHz processor will probably be about 20 to 50% faster than one with half its speed. Researchers at *Stanford University* have designed gallium-arsenide chips that run at least at 100 gigahertz! That's 10,000 times faster than standard 16 MHz microprocessors!

- Backyard Satellite Dish Piracy.** General Instrument is planning a major retooling of its video encryption equipment. The new unit will be called *VideoCipher II Plus*. A new "super-chip" will contain enhanced security measures. Meanwhile, SBCA - the *Satellite Broadcast & Communications Association*, met with the FCC in an effort to help gain passage of legislation increasing the penalties for signal theft. General Instrument, manufacturers of the Videocipher II system, estimate that of 515,000 descramblers in use, 160,000 are illegally authorized or pirate boxes. SBCA believes the number is closer to 250,000. Warner Bros. Pictures has pulled out of the home dish distribution market in protest to the widespread video piracy problem.

REPEATER SELF COORDINATION...

A few months ago, **Mark Bohnhoff, WB9UOM**, of Wheeling, Illinois, wanted to put a low power repeater on the air at Chicago's O'Hare airport for the benefit of travelling amateurs. On April 12th of this year, **Guy Luempert, WB9NET** - a friend of Mark's from neighboring Prospect Heights wrote the year old *Illinois Repeater Association* (IRA) offering to work with them as a *special interest frequency coordinator*. His letters were not answered.

Last year, the FCC made a ruling that it would recognize more than one repeater coordinator in the same geographic area providing it had the support of the amateur community. When Luempert received no response from the Illinois Repeater Association, he notified the IRA that he would begin coordinating "*Special Applications Low Powered (5 watts or less) Repeaters*."

Luempert coordinated the .34/.94 O'Hare repeater belonging to Bohnhoff. After a short period of testing, Mark Bohnhoff, WB9UOM, placed his directional two watt repeater on the air on June 17th about a half mile off of airport property. Two four element beams are pointed right down the runway towards the terminal building.

The trustee was **Hap Holly, KC9RP**, a well-known blind amateur who is active in amateur news circles. In view of the controversy, however, Holly has since relinquished the repeater trusteeship and Luempert (the coordinator) has accepted the position on a temporary interim basis. In effect, he coordinated the repeater that he is trustee of.

Some sixty-two miles south is the IRA coordinated Kankakee, Illinois, repeater operating on the same pair. There are no .34/.94 repeaters operating in the Chicago area.

Howard S. Dybedock, AK9F, of the *Kankakee Area Radio Society* (KARS) charged that amateurs accessing the O'Hare repeater were interfering with the IRA coordinated Kankakee machine. The O'Hare machine went on-line in mid-May for a test run but was turned off less than 24 hours later and was physically removed until June 17th.

The older established repeater maintains that the newer O'Hare machine is illegal since it has not been coordinated by the recognized coordinator,

the Illinois Repeater Association. The Park Ridge (Chicago) FCC field office confirmed that there are instances when the commission recognizes more than one coordinator in an area. The FCC apparently does not want to get involved in the dispute.

Some amateurs are saying that it appears that when Bohnhoff and Luempert didn't get the response they liked, they went ahead and set up their own one-man rival repeater coordination council. At this point, the O'Hare .34/.94 repeater is still operating and in view of the circumstances, the FCC will probably be summoned to get involved in the controversy whether then want to or not.

Bohnhoff said "The repeater is only for local area coverage and it is already being misjudged even before we get a chance to try it. No one has proven any interference. The way the FCC has deregulated it, not only could someone be doing what we are ...but they could be putting up a full power repeater with no regard for a repeater that is 60 miles away. We run 2 watts ...our highest antenna is at 40 feet, 90 degrees away from Kankakee. In ham radio we try to coexist, but everybody should have an equal chance to experience the fun of putting a repeater on the air - even if it doesn't have 20 mile range. You have to be within a mile or two of the airport to hear the repeater reliably. I knew we would be criticized, but I was hoping that people would be open to new ideas."

We reached Howard Dybedock, AK9F, of Kankakee to get his side of the story. He *totally disagreed* with Bohnhoff's statements about the O'Hare repeater and said the interference was indeed *very destructive* to Kankakee. "The self coordination process of Guy Luempert is a self-serving sham. There is an obvious conflict of interest when a trustee coordinates his own repeater. The primary concern of the Kankakee Area Radio Society is that this situation is going to destroy the entire coordination process. The Illinois Repeater Association is duly organized and has representation from all repeaters in Illinois and is the proper mechanism of repeater coordination. You can't have multiple coordinators for the same area ...or you have chaos."

"We have drafted a letter to Bohnhoff and Luempert appealing to their reason and sensibility and hoping that they will recognize how destructive their actions are to the [coordination] process. We are hoping that they will either play by the rules or join the IRA and try to change the rules."